

ABSTRACT

The present invention can diagnose a potential discrepancy in electrical operating characteristics of a three phase electric motor by generating two independent torque estimates using a plurality of current sensors and a shaft position sensor. The invention provides a strategy to generate two independent torque estimates of a three phase electric motor comprising first and second systems to determine currents in two motor phases, first and second systems to generate a first and second estimate of motor shaft position, and first and second systems to generate first and second estimates of motor torque using the first and second systems to determine current in each motor phase and the first and second values of motor shaft position. The present invention detects also an electrical operating characteristic discrepancy in an electric motor-propelled vehicle's electrical components and subsystems, including single subsystem discrepancies between the two independent torque estimates.